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The spider genera *Robertus, Enoplognatha, Steatoda* and *Crustulina* (Araneae: Theridiidae) from Japan

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Abstract — Keys and brief descriptions of 17 species of the genera *Robertus, Enoplognatha, Steatoda* and *Crustulina* are given. A new species, *Robertus yasudai*, is described from the alpine snow-bed communities of Mts. Daisetsu, Hokkaido. A Chinese species, *Enoplognatha lordosa* Zhu & Song 1992, is recorded for the first time from Japan. *Enoplognatha abrupta* (Karsch 1879) and *Clubiona parvula* (S. Saito 1933) are newly transferred from *Steatoda.* Six species names are newly synonymized: *Enoplognatha submargarita* Yaginuma & Zhu 1992 with *E. margarita* Yaginuma 1964; *E. japonica* Bösenberg & Strand 1906, *E. dorsinotata* Bösenberg & Strand 1906 and *Steatoda albimaculosa* (S. Saito 1934) with *E. tecta* (Keyserling 1884); and *E. transversifoveata* (Bösenberg & Strand 1906) and *E. hangzhouensis* Zhu 1998 with *E. abrupta* (Karsch 1879). Two species names, *S. japonica* (Dönitz & Strand 1906) and *S. minus* (Dönitz & Strand 1906), are *nomina dubia.*

Key words — *Robertus, Enoplognatha, Steatoda, Crustulina,* Theridiidae, Japan

Introduction

Twenty-two species of the genera *Robertus, Enoplognatha, Steatoda* and *Crustulina* have been recorded from Japan (Tanikawa 2000). Spiders of these genera have large colulus and resemble each other. Many of them are rather large in Theridiidae, but investigations of Japanese species of the genera have been insufficient. In this paper, I will revise these species.

Three species names, *Enoplognatha japonica* Bösenberg & Strand 1906, *E. dorsinotata* Bösenberg & Strand 1906 and *Steatoda albimaculosa* (S. Saito 1934), are synonymized with *E. tecta* (Keyserling 1884) that has been known from Europe, Russia and North America. *Steatoda abrupta* (Karsch 1879) is newly transferred to *Enoplognatha*, and two species names, *E. transversifoveata* (Bösenberg & Strand 1906) described from Japan and *E. hangzhouensis* Zhu 1998 described from China, are synonymized with *E. abrupta*. In addition to them, a Chinese species, *E. submargarita* Yaginuma & Zhu 1992 is also synonymized with *E. margarita* Yaginuma 1964 originally described from Japan. A Chinese species, *E. lordosa* Zhu & Song 1992, is recorded for the first time from Japan. Thus, for *Enoplognatha* four species are confirmed in Japan.

Ten species of the genus *Steatoda* have been recorded from Japan. One of them, *S. albimaculosa*, is newly synonymized with *E. tecta*, two of them, *S. abrupta* and *S. parvula*, are newly transferred to the other genera, and two species names, *S. japonica* (Dönitz & Strand 1906) and *S. minus* (Dönitz & Strand 1906), are treated as *nomina dubia*. Thus, for *Steatoda* five species are confirmed in Japan.

Five species of the genus *Robertus* and two species of the genus *Crustulina* were recently recorded from Japan (Ohno & Yaginuma 1967; Yaginuma 1986; Ono et al. 1991; Yoshida 1995; Matsuda 1996, 1997). I also record them in this paper. In addition to them, a new species of *Robertus* is described from the alpine snow-bed communities of Mts. Daisetsu, Hokkaido.

Materials and Methods

My private collection was chiefly used in the present study. Some collections of Japanese museums and arachnologists are also used. Data of type specimens are given when I can refer the original descriptions. Prefectural names are capitalized in the list of "specimens examined". Depositories of specimens excluding my private collection are given in abbreviations: ASJ, the Arachnological Society of Japan, Otemon Gakuin University, Osaka; CAT, the Private Collection of Akio Tanikawa, Kanagawa; CMM, the Private Collection of

Mayumi Matsuda, Hokkaido; CYC, the Private Collection of Yasunosuke Chikuni, Nagano; KPM-Ar, the Araneae Collection of the Kumamoto Prefectural Museum, Kumamoto; NSMT-Ar, the Araneae Collection of the Department of Zoology, National Science Museum, Tokyo; OMNH, Osaka Museum of Natural History, Osaka (Collection of the late Takeo Yaginuma); SMF, Senckenberg Museum Frankfurt am Mainz, Germany; THU-Ar, the Araneae Collection of the Department of Biology, Tunghai University, Taichung, Taiwan; ZMMU, Zoological Museum of the Moscow State University, Moscow, Russia.

Keys are given based on the Japanese specimens. Two species of the genus *Steatoda, S. japonica* (Dönitz & Strand 1906) and *S. minus* (Dönitz & Strand 1906), are excluded in the key, because these species names are *nomina dubia*. Females of *Robertus kastoni* Eskov 1987, *R. yasudai* new species, *R. nipponicus* Yoshida 1995 and *Enoplognatha lordosa* Zhu & Song 1992 are also excluded in the key, because female specimens of them are not available. Characters are given chiefly based on the examined specimens. Usage of "tegular apophysis" of male palpus means theridiid tegular apophysis named by Coddington (1990), previously considered median apophysis by Levi (1961).

Taxonomy

Robertus O. Pickard-Cambridge 1879

Diagnosis. Carapace long oval. Chelicera strong, usually with three large teeth on anterior margin of fang furrow, two teeth or denticles on posterior. Legs relatively short and thick; first subequal to fourth in length. Abdomen uniformly grayish brown to blackish brown, with two pairs of dorsal disk-like markings. Colulus large. Male palpus with all screlites, but relatively simple; cymbium with a large spine-like paracymbium on retrolateral margin.

Separated from *Enoplognatha* by having several denticles on posterior cheliceral margin, male chelicerae not enlarged, and lacking a pattern without two pairs of disk-like markings on dorsum of the abdomen.

Type species: *Robertus neglectus* O. Pickard-Cambridge 1879.

Key to the Japanese species of *Robertus*

1. Female ··························2
— Male ··························4
2. Duct of internal genitalia thin, long and twisted (Yoshida 1995, fig. 10) ···*R. ogatai* Yoshida 1995
— Duct of internal genitalia thick, short and not twisted ··························3
3. Epigynum with a median black disk (Fig. 1) ··························*R. sibiricus* Eskov 1987
— Epigynum without a median black disk (Yoshida 1995, fig. 3) ··················*R. saitoi* Yoshida 1995
4. Cymbium of palpus with two or three small stout distal spines ··························5
— Cymbium of palpus without distal spines ·········6
5. Tegular apophysis of palpus large and convex without spine-like projection (Figs. 3–4)··························*R. sibiricus* Eskov 1987
— Tegular apophysis of palpus with two spin-like projections (Figs. 5–6) ·········*R. kastoni* Eskov 1987
6. Conductor and embolus of palpus thin and long ···7
— Conductor and embolus of palpus thick ············8
7. Tegular apophysis of palpus laterally with convex projecting (Yoshida 1995, figs. 7–8) ··························*R. ogatai* Yoshida 1995
— Tegular apophysis of palpus distally with two projections (Figs. 7–9) ·········*R. yasudai* new species
8. Tegular apophysis of palpus ventrally with a large spin-like projection (Yoshida 1995, fig. 2) ··························*R. saitoi* Yoshida 1995
— Tegular apophysis of palpus with two projections (Yoshida 1995, figs. 5–6) ··························*R. nipponicus* Yoshida 1995

Robertus sibiricus Eskov 1987
(Figs. 1–4)

Robertus sibiricus Eskov 1987, p. 287, figs. 14–17 (holotype: ♂ from delta of Chambe River, Taymura River, Evenk Autonomous Region, Krasnoyarsk area, Siberia, Russia, 23-VIII-1982, K. Eskov leg., in ZMMU; not examined); Ono et al. 1991, p. 92, figs. 9–13; Matsuda 1996, p. 63.

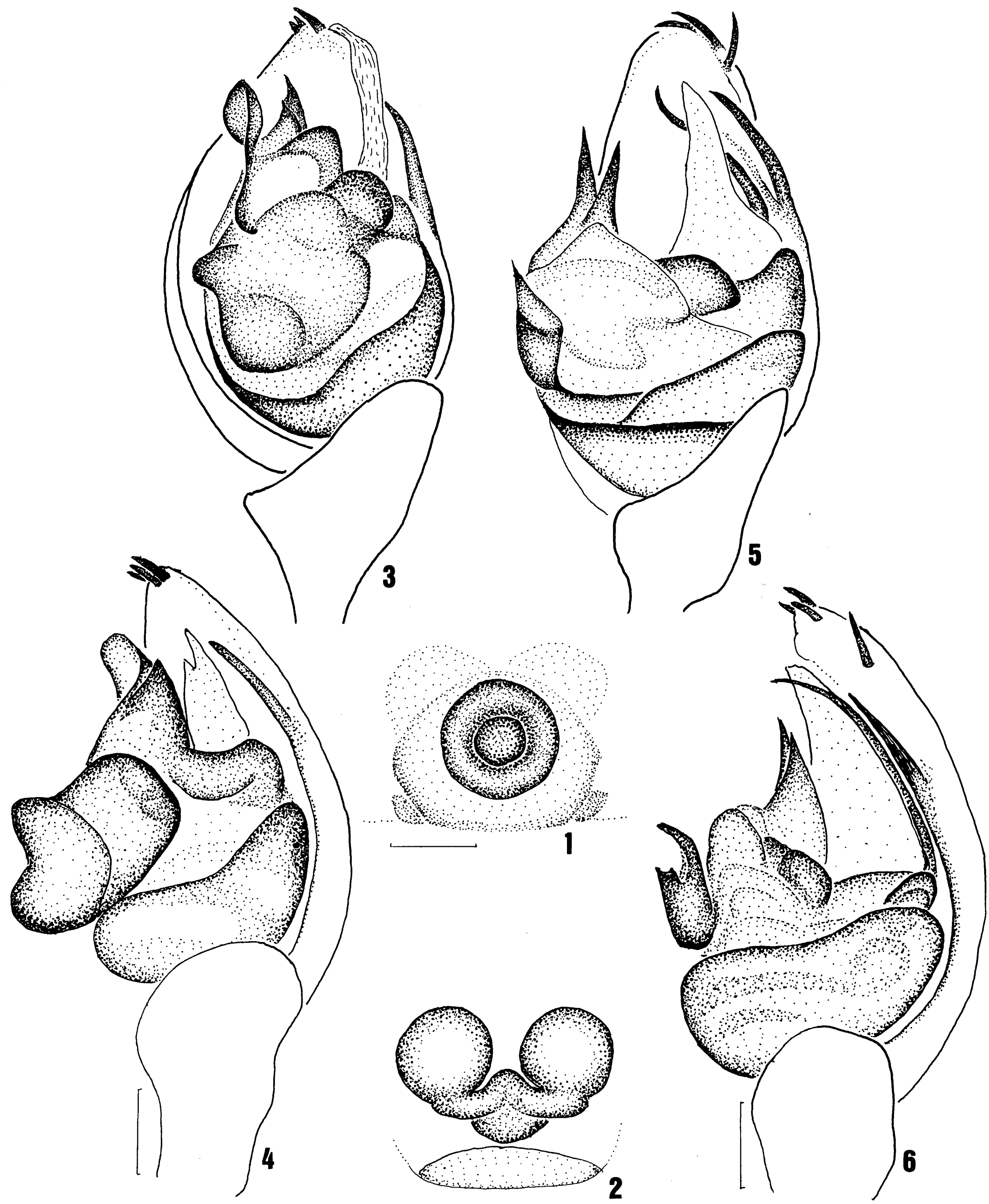
Note. Body length 2.6 to 3.7 mm in female, 2.5 to 3.3 mm in male. Carapace long oval. Abdomen elongated. Female genital organ as shown in Figs. 1–2: Epigynum with median circular disk; an opening situated in the center of depression; seminal receptacles circular; ducts thick, connecting with one at opening. Male palpus as shown in Figs. 3–4: Cymbium with distal two or three spines; paracymbium large spine on retrolateral margin of cymbium; tegular apophysis large and convex projection.

Distribution. Japan: Hokkaido. Russia (Siberia).

Specimens examined. HOKKAIDO: 5♀3♂2juv., a lookout platform, Kutsugata to Mt. Rishiri, Rishiri Is., 13-VII-1990, H. Ono leg. (NSMT-Ar 2096-2097); 2♀1♂, northeast shore, Yudo-numa, Toyokoro-cho, 22-XI-1993, M. Matsuda leg. (CMM); 1♂, Numanohara, Mts. Daisetsu, 29-VII-1986, N. Yasuda leg.; 3♀, Sarobetsu, Horonobe-cho, 21-VI-1996, A. Kudo leg.

Robertus kastoni Eskov 1987
(Figs. 5–6)

Robertus kastoni Eskov 1987, p. 282, figs. 3–7 (holotype: ♂ from delta of Chambe River, Taymura River, Evenk Autonomous Region, Krasnoyarsk area, Siberia, Russia,



Figs. 1–6. *Robertus sibiricus* Eskov 1987, ♀♂ from Toyokoro-cho, Hokkaido (1–4), and *R. kastoni* Eskov 1987, ♂ from Rikubetsu-cho, Hokkaido (5–6)—1, epigynum, ventral view; 2, female internal genitalia, dorsal view; 3–6, male left palpus, ventral (3, 5) and retrolateral (4, 6) view. Scales: 0.1 mm.

22-VIII-1982, K. Eskov leg., in ZMMU; not examined); Matsuda 1997, p. 47, figs. 1–3.

Note. Body length 2.0 to 2.7 mm in female, 2.2 to 2.7 mm in male. Male palpus as shown in Figs. 5–6: Cymbium with distal three stout spines; paracymbium large spine on retrolateral margin of cymbium; tegular apophysis with two spin-like projections.

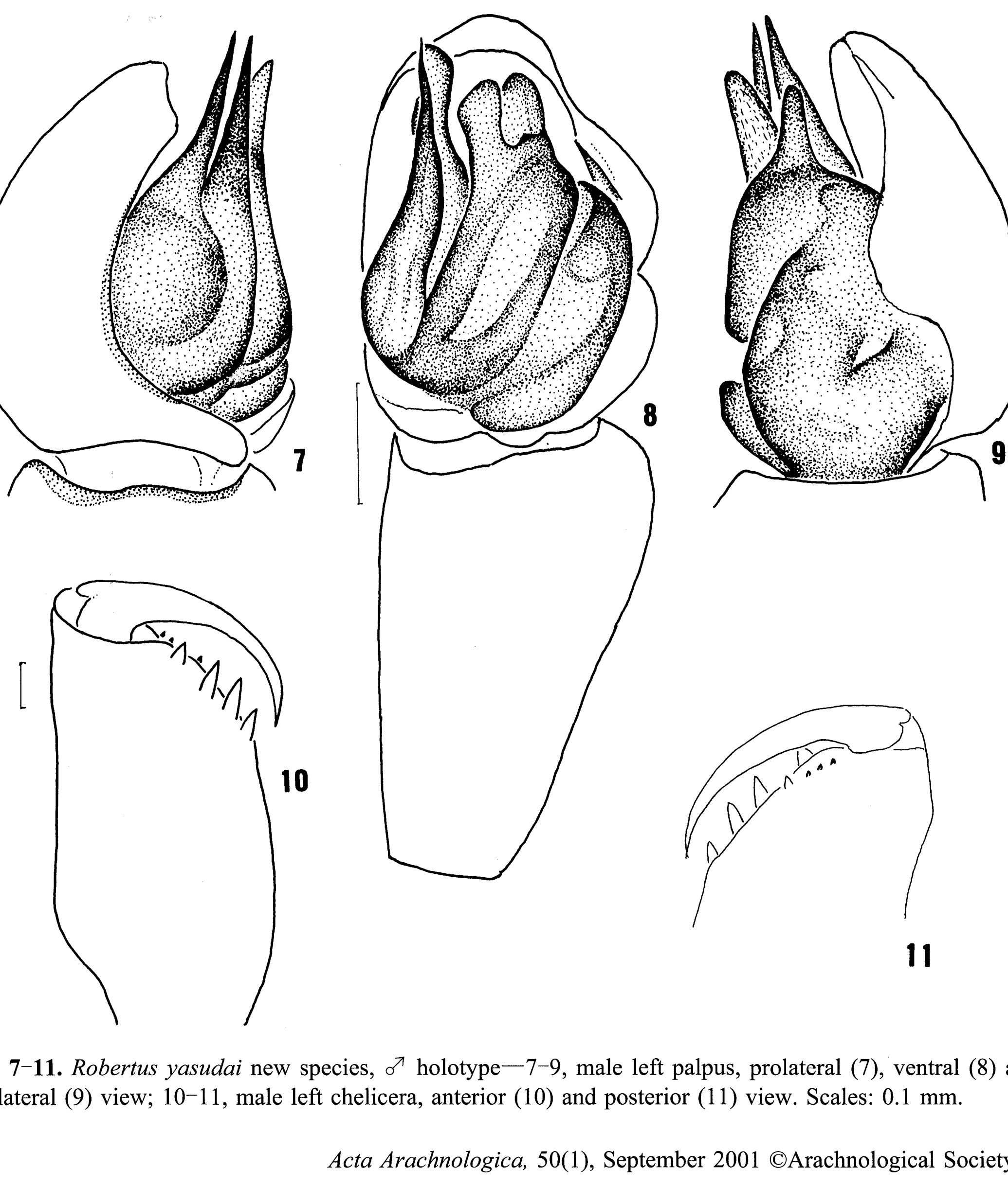
Only two male specimens were collected in Japan. Matsuda (1997) already reported them.

Distribution. Japan: Hokkaido. Russia (Siberia).

Specimens examined. HOKKAIDO: 1♂, 26-VI-1993, 1 ♂, 25-VII-1993, Mt. Kitoushi, Rikubetsu-cho, K. Shibata leg. (CMM).

Robertus yasudai new species
(Figs. 7–11)

Male (holotype). Carapace oval, strongly convex. Eye region rather small; the width 0.3 time the carapace width. Anterior median eyes smaller than the others, two-thirds their diameter apart and five-thirds from laterals. Posterior median eyes six-sevenths their diameter apart and ten-sevenths from laterals. Anterior width of median ocular area shorter than length and posterior width. Chelicera with four teeth on the anterior margin of fang furrow, inner two larger than the others on both sides (Fig. 10); and with three denticles and a small tooth on posterior margin (Fig. 11). Legs stout with macrosetae, relatively short; forth patella and tibia



Figs. 7–11. *Robertus yasudai* new species, ♂ holotype—7–9, male left palpus, prolateral (7), ventral (8) and retrolateral (9) view; 10–11, male left chelicera, anterior (10) and posterior (11) view. Scales: 0.1 mm.

nearly as long as carapace length. Leg formula, 4,1,2,3. Abdomen oval.

Male palpus as shown in Figs. 7–9. Embolus spine-like projection and conductor blunt, both distally straight and near each other. Tegular apophysis distally with two projections. Cymbium with many macrosetae but without distal stout spines. Tibia nearly as long as tarsus.

Coloration. Cephalothorax brown without flecks; palpi and legs light and the others dark. Abdomen blackish brown, epigastric area brown.

Female. Unknown.

Measurements (♂ holotype; in mm). Body length 3.74. Carapace length 1.89; width 1.45; height 0.87. Abdomen length 1.84; width 1.58. First leg: femur 1.50; patella and tibia 1.71; metatarsus 1.13; tarsus 0.74. Second patella and tibia 1.58; third patella and tibia 1.39; fourth patella and tibia 1.82. Body length of male paratypes 3.76 and 3.82 mm.

Note. This species is allied to *R. sibiricus* Eskov 1987 and *R. kastoni* Eskov 1987 distributed in Hokkaido in superficial appearances, but is easily distinguished from them by chelicera with four teeth on anterior margin, and male palpus with tegular apophysis distally projecting and without distal stout spines on cymbium.

Distribution. Japan: Hokkaido (Mts. Daisetsu).

Type series. Holotype: ♂, and paratypes: 2♂, Mt. Tomuraushi 1970 m alt., Mts. Daisetsu, Hokkaido, Japan, 5-VIII-1992, N. Yasuda leg. (NSMT-Ar 4951–4952). These specimens were collected by the baited pitfall traps in the alpine snow-bed communities.

Robertus ogatai Yoshida 1995

Robertus ogatai Yoshida 1995, p. 156, figs. 7–10 (holotype: ♂ from Unryu-keikoku, Nikko-shi, Tochigi Prefecture, Honshu, Japan, 25-V-1984, H. Saito leg., NSMT-Ar 3316; examined).

Note. Embolus and conductor of male palpus are thin and projecting. Duct of female internal genitalia is thin, very long and twisting. These genital organs are much different from those of the other species. Description and figures see Yoshida (1995).

Distribution. Japan: Honshu (Tohoku, Chubu and Kanto Districts).

Robertus saitoi Yoshida 1995

Robertus saitoi Yoshida 1995, p.153, figs. 1–4 (holotype: ♂ from Watarase-yusuichi, Fujioka-machi, Tochigi Prefecture, Honshu, Japan, 25-V-1984, H. Saito leg., NSMT-Ar 3313; examined).

Note. Description and figures see Yoshida (1995). This species has been recorded from type locality alone.

Distribution. Japan: Honshu (Tochigi Pref.).

Robertus nipponicus Yoshida 1995

Robertus nipponicus Yoshida 1995, p. 154, figs. 5–6 (holotype: ♂ from Ikeda, Kumamoto-shi, Kumamoto Prefecture, Kyushu, Japan, 10-VI-1985, T. Irie leg., NSMT-Ar 3315; examined).

Note. For description and figures see Yoshida (1995). This species is known only by the single type specimen.

Distribution. Japan: Kyushu (Kumamoto Pref.).

Enoplognatha Pavesi 1880

Diagnosis. Carapace oval, male elongated, with stridulating ridge posterior on each side in male. Chelicerae of male enlarged with large teeth, chelicerae of female with several teeth on anterior margin, one tooth on posterior. First leg longest, first patella and tibia 1 to 2.5 times carapace length. Abdomen suboval. Abdomen of male with a carina above pedicel. Colulus large, with two setae. Usually dark color with a dorsal foliate fleck, but a Japanese species, *E. margarita*, is grayish white.

Epigynum heavily sclerotized. Palpus with all sclerites; paracymbium on margin of cymbium; a prominent median apophysis supporting embolus; embolus circling clockwise.

This genus resembles *Robertus* and *Steatoda*. Females separated from them by having one tooth on posterior margin of chelicerae, males by structure of palpus.

Type species: *Theridion mandibulare* Lucas 1849.

Key to the Japanese species of *Enoplognatha*

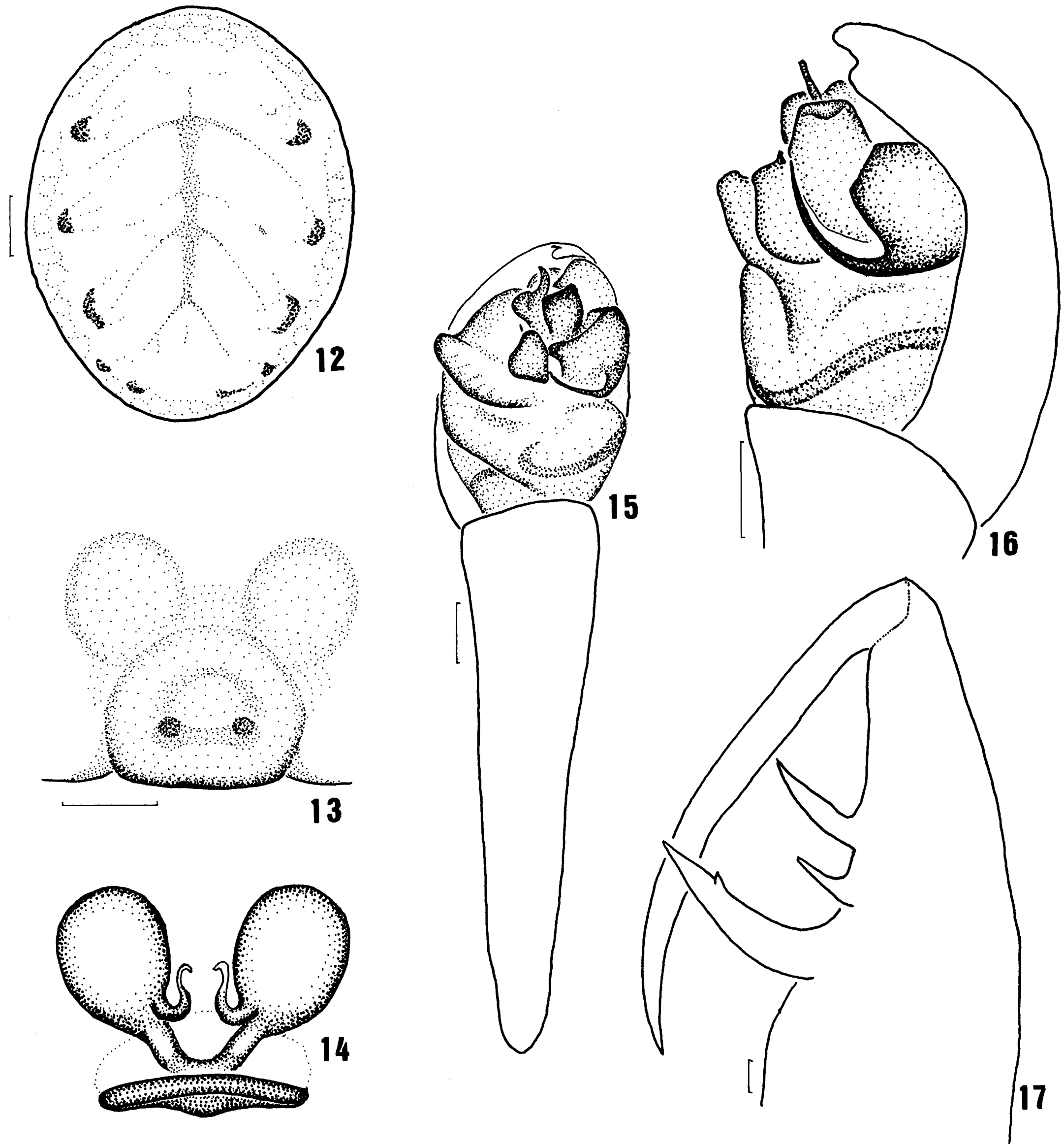
1. Abdomen grayish brown to blackish brown with a large dusky dorsal foliate fleck ····················2
— Abdomen usually grayish white without a foliate fleck, with paired lateral dusky flecks (Fig. 12) ··· ·······················*E. margarita* Yaginuma 1964
2. Female ···3
— Male ···4
3. Epigynum with a posterior lobe and a large oval depression (Fig. 24); ducts of internal genitalia twisted (Fig. 25) ·········*E. abrupta* (Karsch 1879)
— Epigynum with a posterior lobe and a median spherical projection, without distinct depression

(Fig. 19); duct of internal genitalia not twisted (Fig. 20) ······················*E. tecta* (Keyserling 1884)

4. Embolus of palpus forming a complete circle ···5
— Embolus of palpus not forming a complete circle (Figs. 21–22) ···········*E. tecta* (Keyserling 1884)
5. Embolus twisted back of cymbium (Figs. 30–31) ······················*E. lordosa* Zhu & Song 1992
— Embolus not twisted back of cymbium (Figs. 26–28 ···························*E. abrupta* (Karsch 1879)

Enoplognatha margarita Yaginuma 1964
(Figs. 12–17)

Enoplognatha margarita Yaginuma 1964, p. 6, figs. 1–8 (holotype: ♀ from Susado, Horigane-mura, Minami-azumi-gun, Nagano Prefecture, Japan, 24-VII-1950, Y. Chikuni leg., and paratype: ♂ from Jototsu Toge, Kamiina-gun, Nagano Prefecture, Japan, 27-V-1957, Y. Okada leg., in ASJ; paratype examined); Yaginuma 1986, p. 38, pl. 9, fig. 4, text-fig. 21–4; Chikuni 1989, p. 37, fig. 38; Yaginuma & Zhu 1992, p. 157, figs. 9–15;



Figs. 12–17. *Enoplognatha margarita* Yaginuma 1964, ♀♂ from Kamishihoro-cho, Hokkaido—12, female abdomen, dorsal view; 13, epigynum, ventral view; 14, female internal genitalia, dorsal view; 15–16, male left palpus, ventral (15) and retrolateral (16) view; 17, male left chelicera, posterior view. Scales: 0.5 mm (12) and 0.1 mm (13–17).

Zhu 1998, p. 310, fig. 208.

Enoplognatha submargarita Yaginuma & Zhu 1992, p. 155, figs. 1–8 (holotype: ♀ and allotype: ♂ from Altay County, Xinjiang Uygur Autonomous Region, 12-VII-1991, M. Zhu leg., and paratypes: 6♀, 7♂, in Hebei Educational College, Shijiazhuang; not examined. Paratypes: 1♀1♂, same data as for the holotype, in ASJ; examined); Zhu 1998, p. 309, fig. 207. **New Synonymy**

Note. Body length 4.1 to 5.7 mm in female, 3.9 to 5.2 mm in male. Chelicerae with two teeth on anterior margin and one posterior in female, elongated with three large teeth in male (Fig. 17). Legs long: first patella and tibia 2.5 times the carapace length. Abdomen grayish white with dorsal paired dusky flecks as shown in Fig. 12. Female genital organ as shown in Figs. 13–14: Epigynum with median circular lobe without depression; openings indistinct; duct short. Palpal organ as shown in Figs. 15–16: Embolus short; tegular apophysis oval and small; tibia long, twice the tarsal length.

This species is bright color and has long legs. These characteristics are different from the other Japanese species of this genus. *Enoplognatha submargarita* Yaginuma & Zhu 1992 described from China is newly synonymized with this species. Judging from the original description and the examination of the paratypes, I regard the differences between *E. margarita* and *E. submargarita* as geographical or individual variations.

This species is allied to *Enoplognatha ovata* (Clerck 1757) described from Europe in coloration and general appearances, but is easily distinguished from the latter by the genital organ.

Distribution. Japan: Hokkaido and Honshu (Chubu District). Russia, Korea and China.

Specimens examined. HOKKAIDO: 1♀1♂, Yukomanbetsu, 16-VII-1973, H. Tanaka leg.; 7♀, 9-VIII-1987, 2♂, 2-VII-1984, Higashi-oribe, Kamishihoro-cho, M. Matsuda leg. NAGANO: 1♀1♂, locality missing, 21-VII-1964, Y. Chikuni leg. (ASJ); 1♀, Otaki, Kiso-fukushima, 6-VII-1972, H. Tanaka leg.; 1♀, near the Lake Misuzu-ko, Matsumoto-shi, 29-VI-1984, N. Tsurusaki leg.

Enoplognatha tecta (Keyserling 1884)
(Figs. 18–23)

Lithyphantes tectus Keyserling 1884, p. 138, pl. 6, fig. 86 (syntype: ♂ from Denver, Colorado, Marx leg.; not examined).

Enoplognatha tecta: Levi 1957a, p. 13, figs. 11, 25, 28–29, 34–37; Roberts 1985, p. 192, text-fig. 85d.

Enoplognatha caricis: Zhu 1998, p. 303, fig. 203.

Enoplognatha camtschadalica Kulzyński 1885, p. 28, pl. 9, fig. 9 (syntypes: 3♀ from Kamchatka, Russia, B. Dybowski leg.; not examined).

Enoplognatha japonica Bösenberg & Strand 1906, p. 156, pl. 12, fig. 250 (syntypes: ♀ from Saga, Japan, end of April, Dönitz leg., in SMF; not examined); Saito 1941, p. 159, fig. 180; Yaginuma 1960, p. 33, pl. 7, fig. 38, text-fig. 32; Yaginuma 1986, p. 38, pl. 9, fig. 2, text-fig. 21–2; Chikuni 1989, p. 37, fig. 37; Zhu 1998, p. 304, fig. 204. **New Synonymy**

Enoplognatha dorsinotata Bösenberg & Strand 1906, p. 156, pl. 10, fig. 194 (syntype: ♀ from Yunohama near Saga, Japan, in SMF; not examined); Saito 1939, p. 52, text-fig. 6–4; Saito 1941, p. 158, fig. 178; Saito 1959, p. 66, pl. 7, fig. 53, pl. 8, fig. 53; Yaginuma 1960, p. 33, pl. 7, fig. 39, text-fig. 32; Yaginuma 1986, p. 38, pl. 9, fig. 3. **New Synonymy**

Teutana albimaculosa Saito 1934, p. 302, pl. 12, fig. 14, pl. 14, fig. 53 (syntype: ♂ from Sapporo, 14-V-1930, S. Saito leg., depository unknown, probably los); Saito, 1941, p. 155, fig. 175; Saito 1959, p. 67, pl. 7, fig. 56, pl. 8, fig. 56. **New Synonymy**

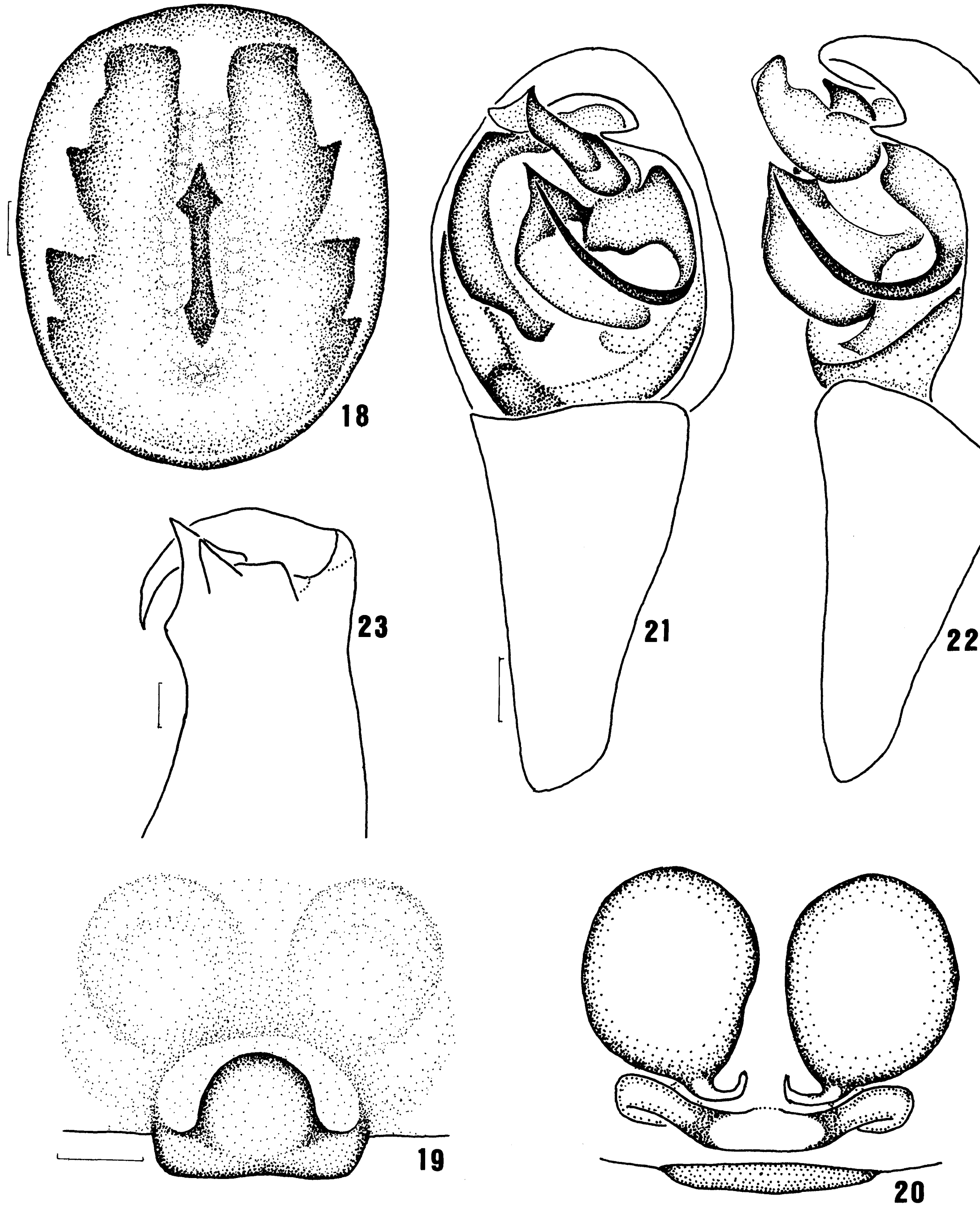
Steatoda albimaculosa: Yaginuma 1986, p. 41.

Note. Body length 4.0 to 7.3 mm in female, 4.0 to 6.2 mm in male. Male chelicera as shown in Fig. 23. Abdomen with a dorsal foliate fleck (Fig. 18); venter with a median black band bordered by gray line. Basal color varies from gray to blackish brown. Female genital organ as shown in Figs. 19–20: Epigynum with posterior lobe and a median spherical projection; depression indistinct; duct not twisted. Palpal organ as shown in Figs. 21–22: Embolus thick and not so long.

Enoplognatha japonica Bösenberg & Strand 1906, *E. dorsinotata* Bösenberg & Strand, 1906 and *Steatoda albimaculosa* (S. Saito 1934) known from Japan are newly synonymized with this species. This species is widely distributed in holarctic region.

Distribution. Japan: Hokkaido, Honshu, Shikoku and Kyushu. Europe, Russia, Korea, China and North America.

Specimens examined. HOKKAIDO: 2♀, 1 juv., Wakasakanai-kaigansakyu, 6-VIII-1985, N. Tsurusaki leg.; 1♀, Wakasakanai, Toyotomi-cho, 1-IX-1988, N. Tsurusaki leg.; 1♂, Noshappu Cape, Wakkanai-shi, 7-VII-1984, N. Tsurusaki leg.; 7♀, Iwaobetsu, Shiretoko Peninsula, 15-VII-1971, H. Tanaka leg.; 2♀1♂, Sounkyo, 7–9-VII-1971, H. Tanaka leg.; 7♀, Shunkunitai, Nemuro-shi, 14-VIII-1986, A. Tanikawa leg. (CAT); 1♀, 12-VII-1984, 1♀, 15-VII-1987, Nukabira, Kamishihoro-cho, M. Matsuda leg. YAMAGATA: 2♀1♂, Mukai-machi, Mogami-machi, 3-VI-1981, H. Yoshida leg. IBARAKI: 1♂, Tsukuba-kenkyu-gakuentoshi, 2-III-1986, A. Tanikawa leg. YAMANASHI: 1♀, Gogome, Mt. Fuji, 21-VIII-1990, A. Tanikawa leg. (CAT). NAGANO: 1♀1♂, Minotoguchi, 29-VII-1973, H. Tanaka leg.; 1♂, Tazawa-bashi, Saikawa, Toyoshina-cho, 9-



Figs. 18–23. *Enoplognatha tecta* (Keyserling 1884), ♀♂ from Mogami-machi, Yamagata Pref.—18, female abdomen, dorsal view; 19, epigynum, ventral view; 20, female internal genitalia, dorsal view; 21–22, male left palpus, ventral (21) and retrolateral (22) view; 23, male left chelicera, posterior view. Scales: 0.5 mm (18) and 0.1 mm (19–23).

VIII-1990, A. Tanikawa leg. (CAT). AICHI: 1♀, Toyama-mura, 5-V-1998, K. Ogata leg.; 1♂, Yamayashiki-cho, Chiryu-shi, 27-XII-1990, K. Ogata leg. OSAKA: 5♂, Daisen-cho, Sakai-shi, 26-XI-1967, H. Tanaka leg. HYOGO: 1♀, Kashiwabara, 4-VI-1961, I. Yoshimi leg. (NSMT-Ar 153).

Enoplognatha abrupta (Karsch 1879)
new combination
(Figs. 24–29)

Linyphia abrupta Karsch 1879, p. 61 (syntype: ♀ from Japan; not examined).

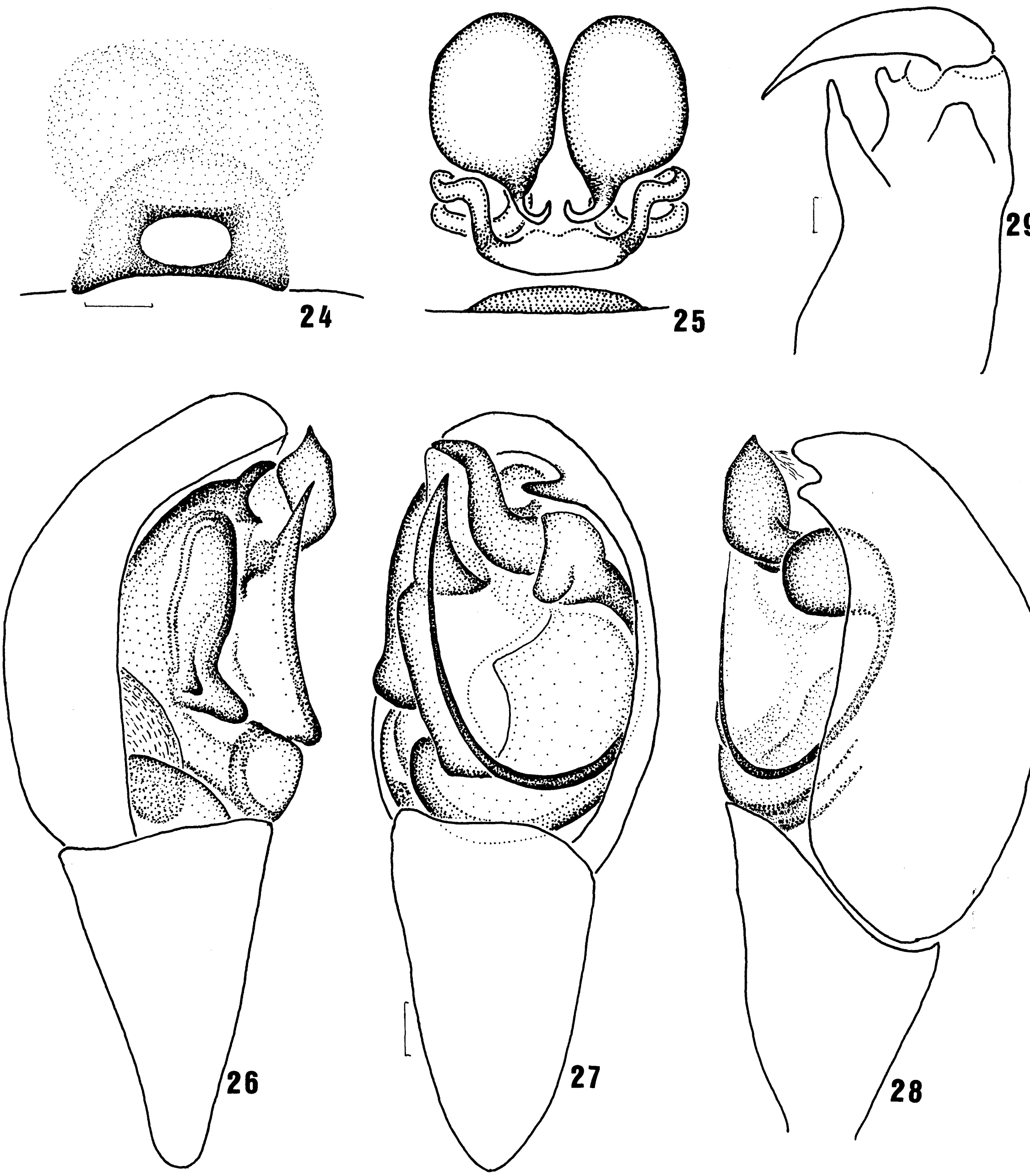
Stearodea abrupta: Bösenberg & Strand 1906, p. 152, pl. 12, fig. 253.

Steatoda abrupta: Saito 1941, p. 150, fig. 168; Yaginuma 1960, p. 34, text-fig. 33; Yaginuma 1986, p. 41, text-fig. 22–1.

Teutana transifoveata Bösenberg & Strand 1906, p. 153, pl. 12, fig. 288 (syntype: ♀ from Saga?, Japan, in SMF; not examined); Saito 1941, p. 156, fig. 176; Chikuni 1989, p. 37, fig. 36. **New Synonymy**

Enoplognatha transifoveata: Yaginuma 1960, p. 33, pl. 7, fig. 37, text-fig. 32; Yaginuma 1986, p. 38, pl. 9, fig. 1, text-fig. 21–1.

Enoplognatha hangzhouensis Zhu 1998, p. 314, fig. 211 (holotype: ♀ from Xiangyuang County, Shanxi Province, China, 10-VI-1984, M. Zhu leg., and, allotype: ♂ and paratypes: 2♂ from Haongzhou City, Zhejiang Province, China, 15-VIII-1978, M. Zhu leg., in Hebei Educational College, Shijiazhuang; not examined). **New**



Figs. 24–29. *Enoplognatha abrupta* (Karsch 1879), ♀♂ from Hashimoto-shi, Wakayama Pref.—24, epigynum, ventral view; 25, female internal genitalia, dorsal view; 26–28, male left palpus, prolateral (26), ventral (27) and retrolateral (28) view; 29, male left chelicera, posterior view. Scales: 0.1 mm.

Synonymy

Note. Body length 5.9 to 8.1 mm in female, 4.2 to 6.5 mm in male. Male chelicera as shown in Fig. 29. Female genital organ as shown in Figs. 24–25: Epigynum with oval depression; duct twisted. Palpal organ as shown in Figs. 26–28: Embolus forming a large circle.

Though this species has been kwon as *Enoplognatha transifoveata* (Bösenberg & Strand 1906) in Japan, *E. transifoveata* and *E. hangzhouensis* Zhu 1998 described from China are synonymized with *E. abrupta.* Judging from the original descriptions of these species, there are no distinctive characters.

Distribution. Japan: Honshu (Hokuriku and Kinki Districts), Shikoku and Kyushu. Korea and China.

Specimens examined. ISHIKAWA: 1♀, Kashimanom-ori, Shioya-cho, Kaga-shi, 24-VI-1987, J. Taka leg. KYOTO: 1♀, Hirata, Kumihama-cho, winter 1975–76, staff of the Kyoto Forestry Experiment Station leg. OSAKA: 1♀, 24-XI-1966, H. Tanaka leg., 1♀, 20-V-1979, H. Yoshida leg., Mt. Iwawaki; 6♀, Matsuo-ji, Izumi-shi, 3-V-1977, H. Yoshida leg.; 2♀1♂, Nishino-machi, Sakai-shi, 3-II-1969, H. Tanaka leg. WAKAYAMA: 1♀1♂1 juv., Kimi-toge, Hashimoto-shi, 9-IV-1978, H. Yoshida leg. HYOGO: 1♀, Hikami-cho, 12-VII-1966, H. Tanaka leg.; 4♀, Yanagi-machi, Hikami-cho, 25-V-1969, H. Tanaka leg. FUKUOKA: 3♀, Mt. Tachibana, Fukuoka-shi, 2-V-1978, H. Yoshida leg.

Enoplognatha lordosa Zhu & Song 1992
(Figs. 30–32)

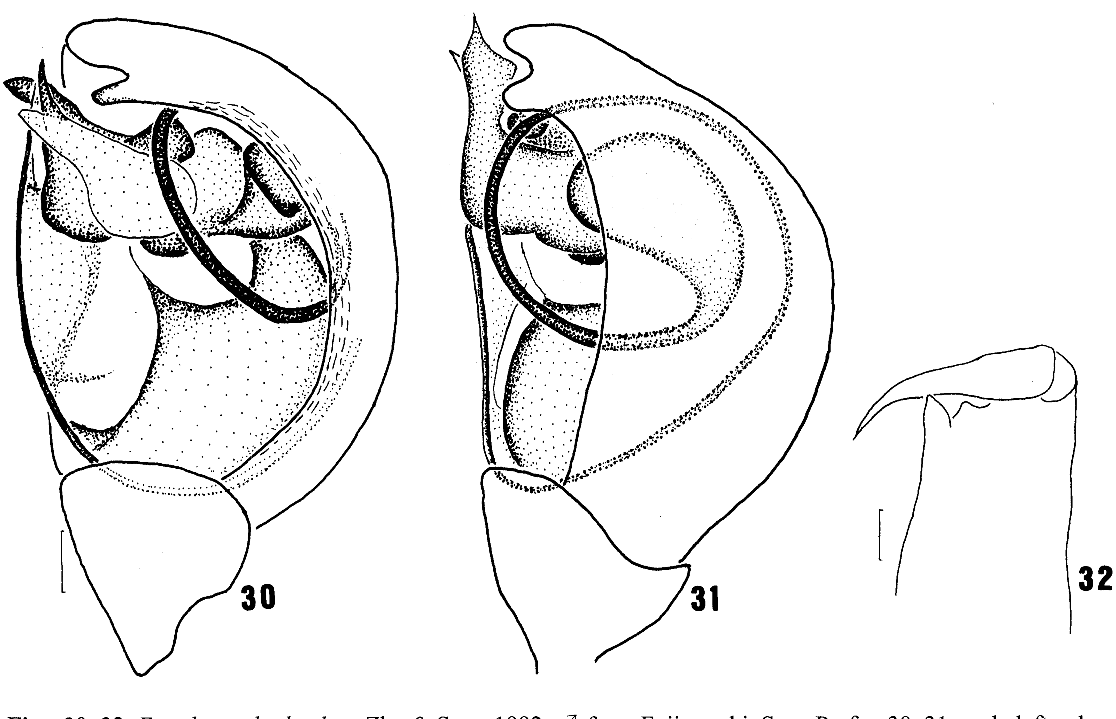
Enoplognatha lordosa Zhu & Song 1992, p. 4, figs. A–C (holotype: ♂ from Hefeng County, Hubei Province, China, 30-V-1989, in the Institute of Zoology, Academia Sinica, Beijing; not examined); Zhu 1998, p. 313, fig. 210.

Note. Body length 5.0 mm in female, 3.6 to 4.5 mm in male. Male chelicera as shown in Fig. 32. Palpal organ as shown in Figs. 30–31: Embolus thin and largely encircling, basal half of embolus back of the retrolateral margin of cymbium. Female described by Zhu (1998).

This species originally described from Hubei Province, China. In this paper, I newly record it from Japan. This species is easy to distinct from other species by male palpus, but difficult by only female specimens. Females may have been misidentified with other species.

Distribution. Japan: Honshu (Kyoto Pref.) and Kyushu (Saga Pref.). China.

Specimens examined. KYOTO: 1♂, Kumihama-cho, winter 1975–76, staff of the Kyoto Forestry Experiment Station leg. SAGA: 1♂1♂juv., Kumanogawa, Fuji-machi, 5-V-1978, H. Yoshida leg.



Figs. 30–32. *Enoplognatha lordosa* Zhu & Song 1992, ♂ from Fuji-machi, Saga Pref.—30–31, male left palpus, ventral (30) and retrolateral (31) view; 32, male left chelicera, posterior view. Scales: 0.1 mm.

Steatoda Sundevall 1833

Diagnosis. Carapace oval, relatively narrow in eye region, with stridulating ridge posterior on each side or on medians in male. Lateral eyes sometimes separated. Chelicerae sometimes enlarged in male, with one or two teeth on anterior margin, none posterior in females. First or fourth legs longest; longest patella and tibia 0.8 to 2 times carapace length. Abdomen suboval, male sclerotized ring around pedicel with stridulating structure. Usually abdomen reddish brown to blackish black, often with a white line around anterior margin. Colulus large, with several setae.

Seminal receptacles one pair, usually with thin-walled sacs. Palpus with all sclerotis, usually a large tegular apophysis, paracymbial hook inside of cymbium.

This genus resembles *Enoplognatha* and *Crustulina*. Discriminating characters are given under the descriptions of these genera.

Note. One species, *Steatoda parvula* S. Saito 1933 described from Rishiri Island, Hokkaido, is newly transferred to the genus *Clubiona* (*Clubiona parvula*, **new combination**) belonging to the family Clubionidae. Though any specimens of *C. parvula* are not available for the present study, judging from the original description, this species clearly belongs to *Clubiona*. Mentioned above, *S. abrupta* is also newly transferred to *Enoplo gnatha*, and *S. albimaculosa* is newly synonymized with E. tecta.

Judging from the original descriptions of *S. japonica* (Dönitz & Strand 1906) and *S. minus* (Dönitz & Strand 1906), these species do not belong to the genus *Steatoda* but the true genera of them are uncertain. Any specimens have not been available for Japanese arachnologists since the original descriptions. Therefore I treat these two species names as *nomina dubia.*

Type species: *Araneus castanea* Clerck 1757.

Key to the Japanese Species of *Steatoda*

1. Female ··························2
— Male ··························6
2. Epigynal depression with median septum (Fig. 40) ··························*S. grossa* (C. Koch 1838)
— Epigynal depression without median septum ······3
3. Epigynum with a spherical black mark in middle (Fig. 35) ················*S. cingulata* (Thorell 1890)
— Epigynum without a spherical black mark in middle ··························4
4. Epigynum with a pair of posterior projection (Fig. 43) ················*S. albomaculata* (De Geer 1778)
— Epigynum without posterior projection ··········5
5. Epigynum with a pair of spherical projections; openings indistinct (Fig. 46); body length more than 3.5 mm ···*S. triangulosa* (Walckenaer 1802)
— Epigynum without spherical projection; openings in the middle of epigynum (Figs. 49–50); body length less than 3.5 mm ··························*S. erigoniformis* (O. Pickard-Cambridge 1872)
6. Tegular apophysis of palpus with large distal projection ··························7
— Tegular apophysis of palpus without large distal projection ··························8
7. Tegular apophysis tapering to apex, extending prolatero-distally (Fig. 45) ··························*S. albomaculata* (De Geer 1778)
— Tegular apophysis blunt, extending distally (Fig. 48) ·············*S. triangulosa* (Walckenaer 1802)
8. Embolus of palpus membranous (Figs. 37–38) ···························*S. cingulata* (Thorell 1890)
— Embolus of palpus not membranous ·············9
9. Embolus with large circular base, extending distally (Fig. 42); body length more than 4.0 mm ··························*S. grossa* (C. Koch 1838)
— Embolus without large circular base, twisted (Fig. 52); body length less than 3.5 mm ··························*S. erigoniformis* (O. Pickard-Cambridge 1872)

Steatoda cingulata (Thorell 1890)
(Figs. 33–38)

Stethopoma cingulatum Thorell 1890, p. 289 (syntypes: ♀ ♂ from Sindang-laja, Java, Beccari leg., and ♂ from Ajer Mancior, Sumatra, Beccari leg.; not examined).

Steatoda cingulata: Levi & Levi 1962, figs. 264–265; Zhu 1998, p. 329, fig. 220.

Lithyphantes cavernicola Bösenberg & Strand 1906, p. 154, pl. 5, fig. 57 (syntype: ♂juv., in SMF; not examined); Saito 1941, p. 151, fig. 169; Saito 1959, p. 66, pl. 7, fig. 54.

Steatoda cavernicola: Yaginuma 1972, p. 26; Yaginuma 1986, p. 39, pl. 9, fig. 5, text-fig. 21–5; Chikuni 1989, p. 40, fig. 48.

Asagena albilunata Saito 1939, p. 51, pl. 1, fig. 3, text-fig. 6–3 (syntypes: 1♀, 1♂ from Sakata-shi, Yamagata Prefecture, Japan, 15-IX-1935, K. Ota leg., depository unknown, probably los); Saito 1941, p. 154, fig. 173; Saito 1959, p. 66, pl. 7, fig. 52, pl. 8, fig. 52.

Steatoda albilunata: Yaginuma 1960, p. 34, pl. 7, fig. 41.

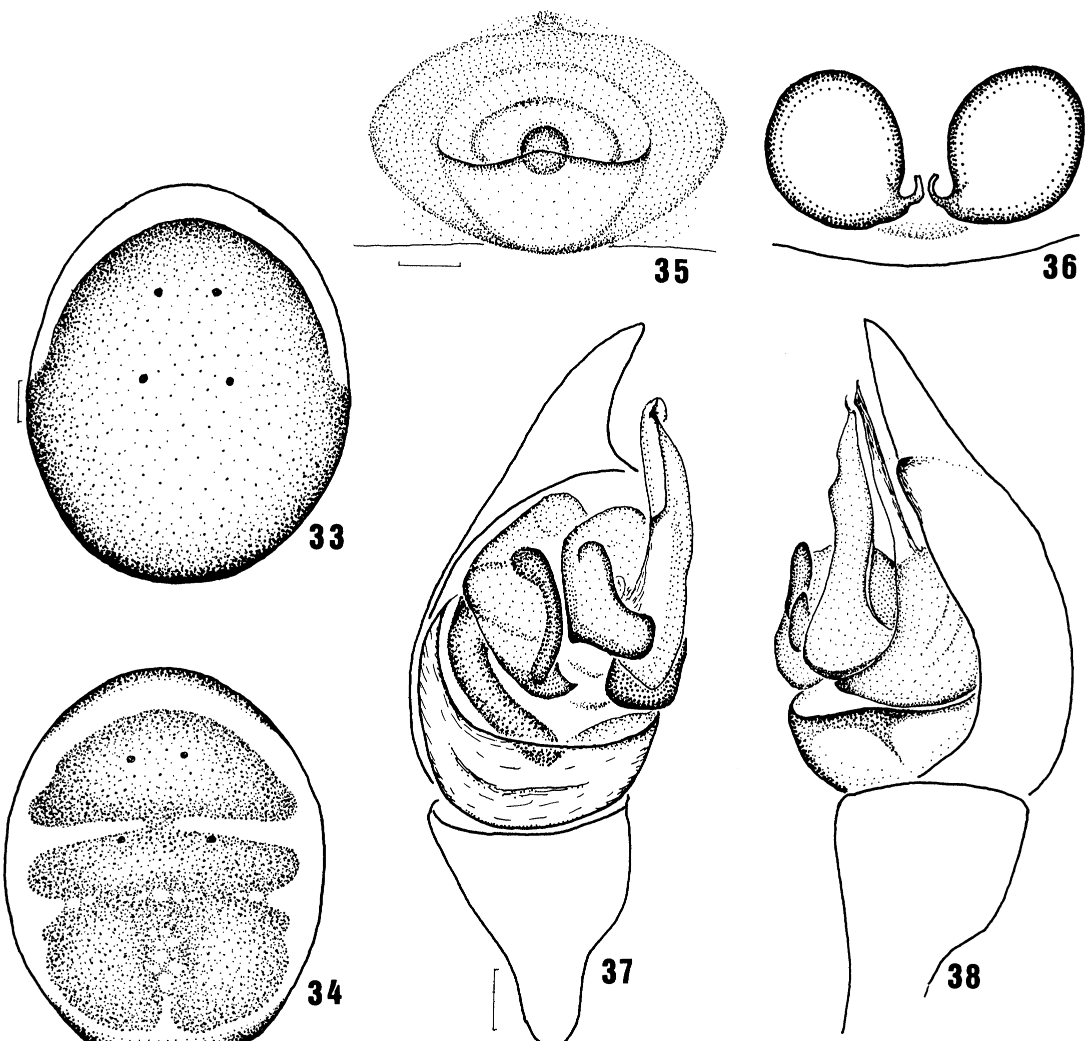
Note. Body length 6.0 to 7.4 mm in female, 5.0 to 6.0 mm in male. Abdomen blackish brown with a yellow line around anterior margin (Fig. 33), sometimes with

two dorsal transverse lines (Fig. 34) or without any lines. Female genital organ as shown in Figs. 35–36: Epigynum with a spherical black mark in middle anterior depression; opening situated in the middle. Palpal organ as shown in Figs. 37–38: Embolus and conductor membranous and extending distally, near each other; cymbium with distal tip projecting.

This species had been known from Japan as *Steatoda cavernicola* (Bösenberg & Strand 1906) and *S. albilunata* (S. Saito 1939). Yaginuma (1972) synonymized *S. albilunata* with *S. cavernicola*, and recently, Zhu (1998) synonymized *S. cavernicola* with *S. cingulata* (Thorell 1890) that was originally described from Indonesia. This species is widely distributed in Southeast and East Asia.

Distribution. Japan: Hokkaido, Honshu, Shikoku, Kyushu and the Ryukyus. Korea, China and Indonesia.

Specimens examined. MIYAGI: 1♀, riverside of Kitakamigawa, 26-V-1994, collector missing (CMM). SAITAMA: 1♀, Nishiagano, Hanno-shi, 15-V-1994, A. Shinkai leg. KANAGAWA: 1♂, Sakawagawa-kasenjiki, Yamakita High School, Yamakita-cho, 30-IX-1995, T. Hasebe leg. OSAKA: 1♀, Univ. Osaka Pref., Sakai-shi, 16-VIII-1976, H. Tanaka leg.; 1♀, same locality, 13-IV-1977, H. Yoshida leg.; 1♀, Shinkanaoka-cho, Sakai-shi, 18-VIII-1984, H. Tanaka leg.; 1♂, Fujisawadai, Tondabayashi-shi, 16-IX-1984, H. Tanaka leg. OKAYAMA: 1♂, Hiro-omote, Kamogawa-cho, 18-X-1989, K. Nojima leg. OITA: 1♀, Matsubara-ryokuchi, Sansa, Oita-shi, 27-VI-1981, N. Kikuya leg. OKINAWA: 1♀, Ishigaki Airport, Ishigaki Is., 30-VIII-



Figs. 33–38. *Steatoda cingulata* (Thorell 1890), ♀ from Hanno-shi, Saitama Pref. (33, 35–36) and from Sakai-shi, Osaka Pref. (34), and ♂ from Yamakita-cho, Kanagawa Pref. (37–38)—33–34, female abdomen, dorsal view; 35, epigynum, ventral view; 36, female internal genitalia, dorsal view; 37–38, male left palpus, ventral (37) and retrolateral (38) view. Scales: 0.5 mm (33–34) and 0.1 mm (35–38).

1995, H. Tanaka leg. TAIWAN: 1♀, Orchid Island, Taitung County, 18-III-1997, I-M. Tso leg. (THU-Ar-970022).

Steatoda grossa (C. Koch 1838)
(Figs. 39–42)

Steatoda grossa: Levi 1957b, p. 404, figs. 74, 83–85; Yaginuma 1960, p. 34, pl. 7, fig. 40; Levi 1967, p. 184, figs. 50–52; Roberts 1985, p. 178, text-fig. 79e, pl. 107 d; Yaginuma 1986, p. 39, pl. 9, fig. 7, text-fig. 21-7.

Note. Body length 7.5 to 11.0 mm in female, 4.0 to 7.5 mm in male. Abdomen blackish brown with a white line around anterior margin and white pigments as shown in Fig. 39; venter grayish brown, epigastric area brown. Female genital organ as shown in Figs. 40–41: Epigynum is similar to that of many other species; border around depression incomplete on each side, median border connecting from anterior to posterior; blackish brown seminal receptacles are seen from epigynum; ducts connecting with anterior sacs. Palpal organ as shown in Fig. 42: Embolus with large base, extending distally; conductor membranous; tegular apophysis small, extending prolatelo-distally.

This species is usually found in the corner of warehouse or cabin and may be introduced to Japan.

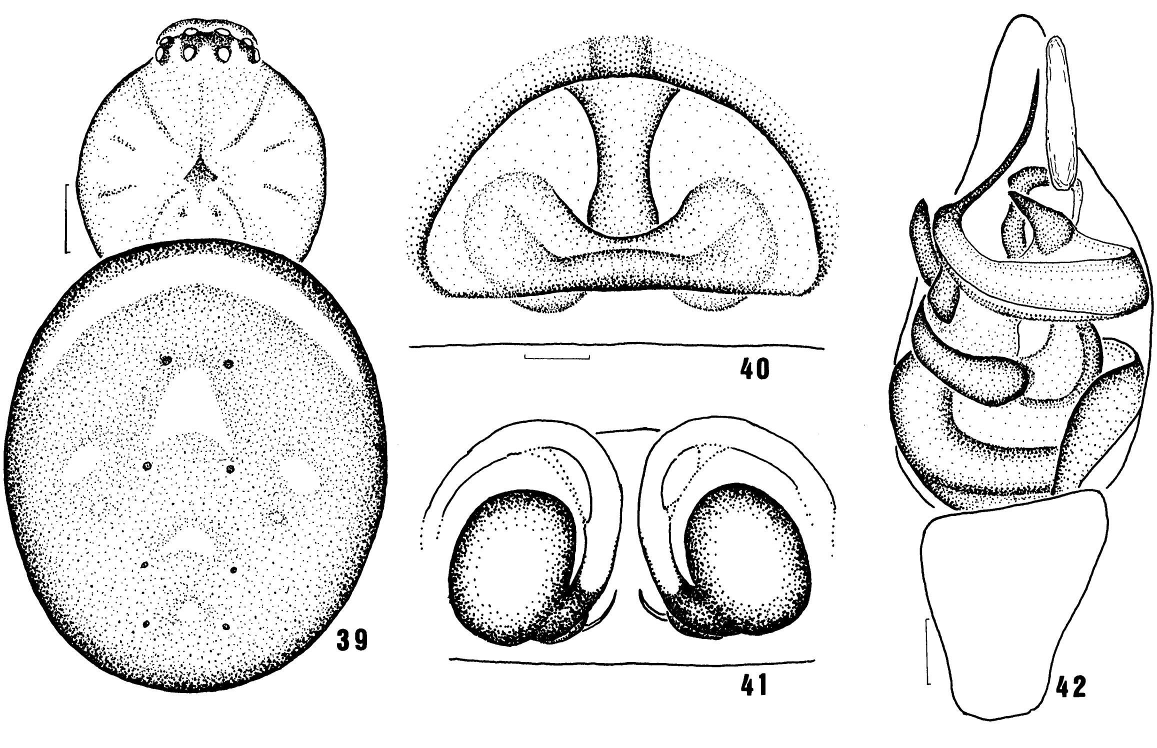
Distribution. Japan: Honshu and Kyushu. Cosmopolitan.

Specimens examined. AICHI: 2♀, Izumida-cho, Kariya-shi, 13-II-1996, K. Ogata leg; 1♂, Tsutsumi-machi, Toyota-shi, 1-XII-1990, K. Ogata leg. MIE: 1♂, City Office, Ueno-shi, 27-IX-1998, K. Kaihotsu leg. OSAKA: 1♀, Takatsuki-machi, Takatsuki-shi, 26-X-2000, T. Kamura leg. FUKUOKA: 1♀ 1♀juv.1♂juv., Moji-ko, Kitakyushu-shi, 19-XII-1991, T. Irie leg. (KPM-Ar 227).

Steatoda albomaculata (De Geer 1778)
(Figs. 43–45)

Steatoda albomaculata: Levi 1957b, p. 396, figs. 56–65; Roberts 1985, p. 178, text-fig. 79d, pl. 110; Yaginuma 1986, p. 39, pl. 9, fig. 6, text-fig. 21–6; Chikuni 1989, p. 40, fig. 47; Paik 1995, p. 5, figs. 1–7; Zhu 1998, p. 341, fig. 228.

Note. Body length 5.2 to 7.0 mm in female, 3.9 to 6.7 mm in male. Lateral eyes one-fifth their diameter apart in female, two-fifths in male. Female genital organ as shown in Figs. 43–44: Epigynum with a pair of posterior



Figs. 39–42. *Steatoda grossa* (C. Koch 1838), ♀ from Kariya-shi, Aichi Pref. and ♂ from Toyota-shi, Aichi Pref.—39, female carapace and abdomen, dorsal view; 40, epigynum, ventral view; 41, female internal genitalia, dorsal view; 42, male left palpus, ventral view. Scales: 1 mm (39) and 0.1 mm (40–42).

projection; seminal receptacles one pair, with a pair of large thin-walled sacs. Palpal organ as shown in Fig. 45: Embolus thin, extending distally; tegular apophysis projecting prolatero-distally.

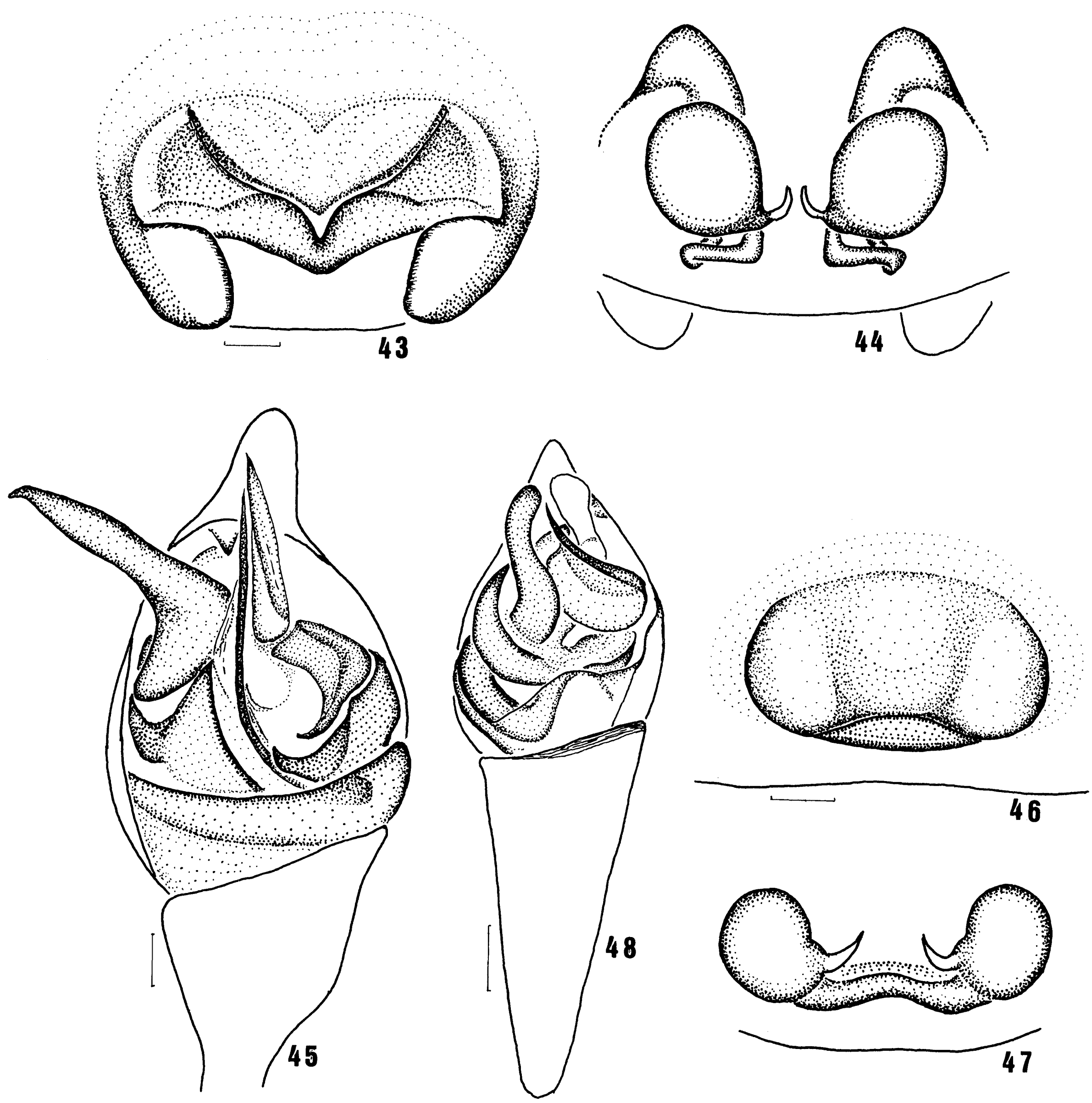
Distribution. Japan: Hokkaido and Honshu. Europe, North Africa, Russia, Korea, China and North America.

Specimens examined. HOKKAIDO: 4♀ 2♀ juv.3♂, Higashi-oribe, Kamishihoro-cho, 29-IV-1998, M. Matsuda leg. KANAGAWA: 4♀2♂, Garase, Yamakita-cho, 27-XI-1995, H. Ikeda leg.

Steatoda triangulosa (Walckenaer 1802)
(Figs. 46–48)

Steatoda triangulosa: Levi 1957b, p. 407, figs. 75–76, 80–82; Levi & Levi 1962, figs. 258–259; Levi 1967, p. 185, figs. 53–56; Yaginuma 1986, p. 39, pl. 9, fig. 9, text-fig. 21–9; Zhu 1998, p. 335, fig. 224

Note. Body length 3.6 to 5.9 mm in female, 3.5 to 4.7 mm in male. Female genital organ as shown in Figs. 46–



Figs. 43–48. *Steatoda albomaculata* (De Geer 1778), ♀♂ from Kamishihoro-cho, Hokkaido (43–45), and *S. triangulosa* (Walckenaer 1802), ♀♂ from Koshoku-shi, Nagano Pref. (46–48) —43, 46, epigynum, ventral view; 44, 47, female internal genitalia, dorsal view; 45, 48, male left palpus, ventral view. Scales: 0.1 mm.

47: Epigynum a rather indistinct structure, a shallow depression with a posterior projection. Palpal organ as shown in Fig. 48: Embolus short with large base; tegular apophysis projecting distally.

Distribution. Japan: Honshu and Kyushu. Central and southern Europe, southern Russia, Mediterranean, Korea, China and North America.

Specimens examined. NAGANO: 1♀1♂, Awasa, Koshoku-shi, 15-VIII-1994, K. Nukanoya leg. AICHI: 2♀2♂, Jinno-ryokuchi, Jinno-cho, Toyohashi-shi, 4-I-1996, K. Ogata leg. KUMAMOTO: 3♀1♂, Yatsushiro-shi, 12-XI-1991, T. Irie leg. (KPM-Ar 226).

Steatoda erigoniformis
(O. Pickard-Cambridge 1872)
(Figs. 49–52)

Steatoda erigoniformis: Levi & Levi 1962, figs. 261–262; Levi 1967, p. 184, figs. 46–49; Yaginuma 1972, p. 26; Yaginuma 1986, p. 39, pl. 9, fig. 9, text-fig. 21–9; Chikuni 1989, p. 40, fig. 49; Zhu 1998, p. 332, fig. 222.
Lithyphantes septemmaculatus Keyserling 1884, p. 141, pl. 6, fig. 88 (syntypes: ♀ from Denver, Columbia, July, Marx leg., and ♀ from Enterprise, Florida, December, Marx leg.; not examined); Bösenberg & Strand 1906, p. 155, pl. 12, fig. 277; Saito 1941, p. 152, fig. 171.
Steatoda septemmaculata: Levi 1957b, p. 402, figs. 70–73.

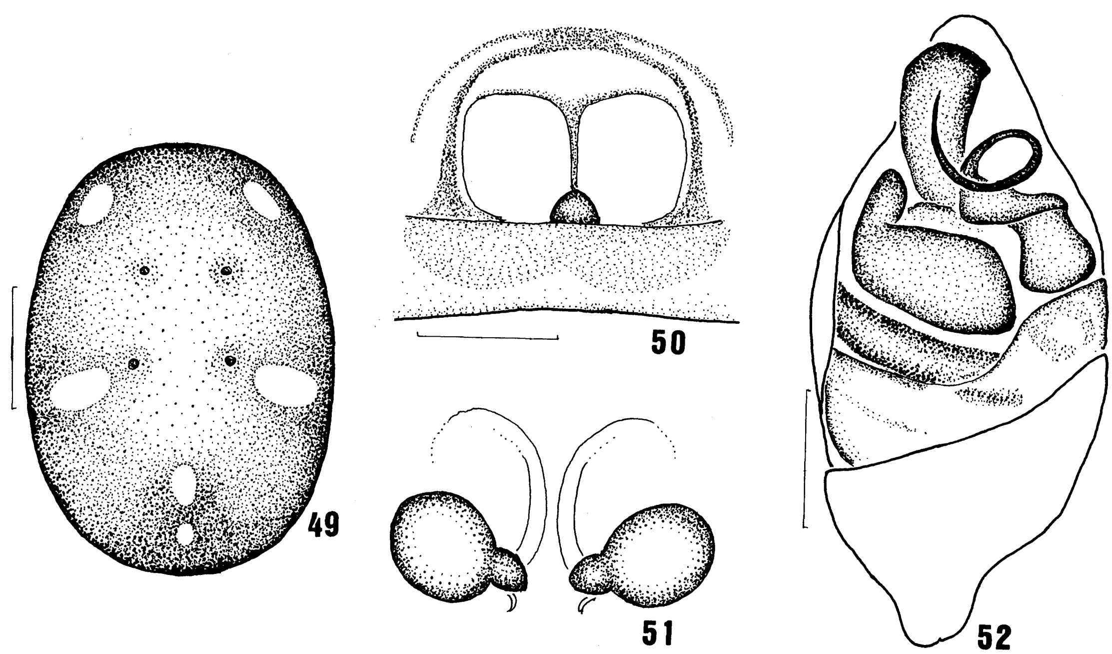
Note. Body length 2.5 to 3.2 mm in female, 1.8 to 3.4 mm in male. Abdomen suboval, more elongated than the other Japanese species; dorsum blackish brown with two pairs of lateral and three posterior white pigments (Fig. 49); venter with two white ones above spinnerets. Female genital organ as shown in Figs. 50–51: Epigynum with a pair of oval flecks and a small median depression; ducts connecting to the anterior sacs. Palpal organ as shown in Fig. 52: Embolus twisted; conductor large distal projection.

Distribution. Japan: Honshu, Kyushu and the Ryukyus. Near East to China and North America.

Specimens examined. AICHI: 2 juv., Izumida-cho, Kariya-shi, 6-XI-1987, K. Ogata leg. OKAYAMA: 1♀, Otoshima, Kurashiki-shi, 23-V-1995, K. Nojima leg. YAMAGUCHI: 1♀, Nishitsu-kantaku, Ube-shi, 21-V-1990, Y. Ihara leg. OKINAWA: 1♂, Funaura, Iriomote Is., 3-I-1986, A. Tanikawa leg.; 8♀, Urauchi, Iriomote Is., 28-XII-1987, A. Tanikawa leg. (CAT); 1♂, Sonai, Iriomote Is., 1-IV-1994, A. Tanikawa leg. (CAT).

Crustulina Menge 1868

Diagnosis. Carapace and sternum covered with elongate dark tubercles, which are the bases of fine hairs. One tooth on anterior margin of chelicerae and no teeth on posterior. First or fourth legs longest, longest patella and tibia nearly as same as carapace length. Abdomen



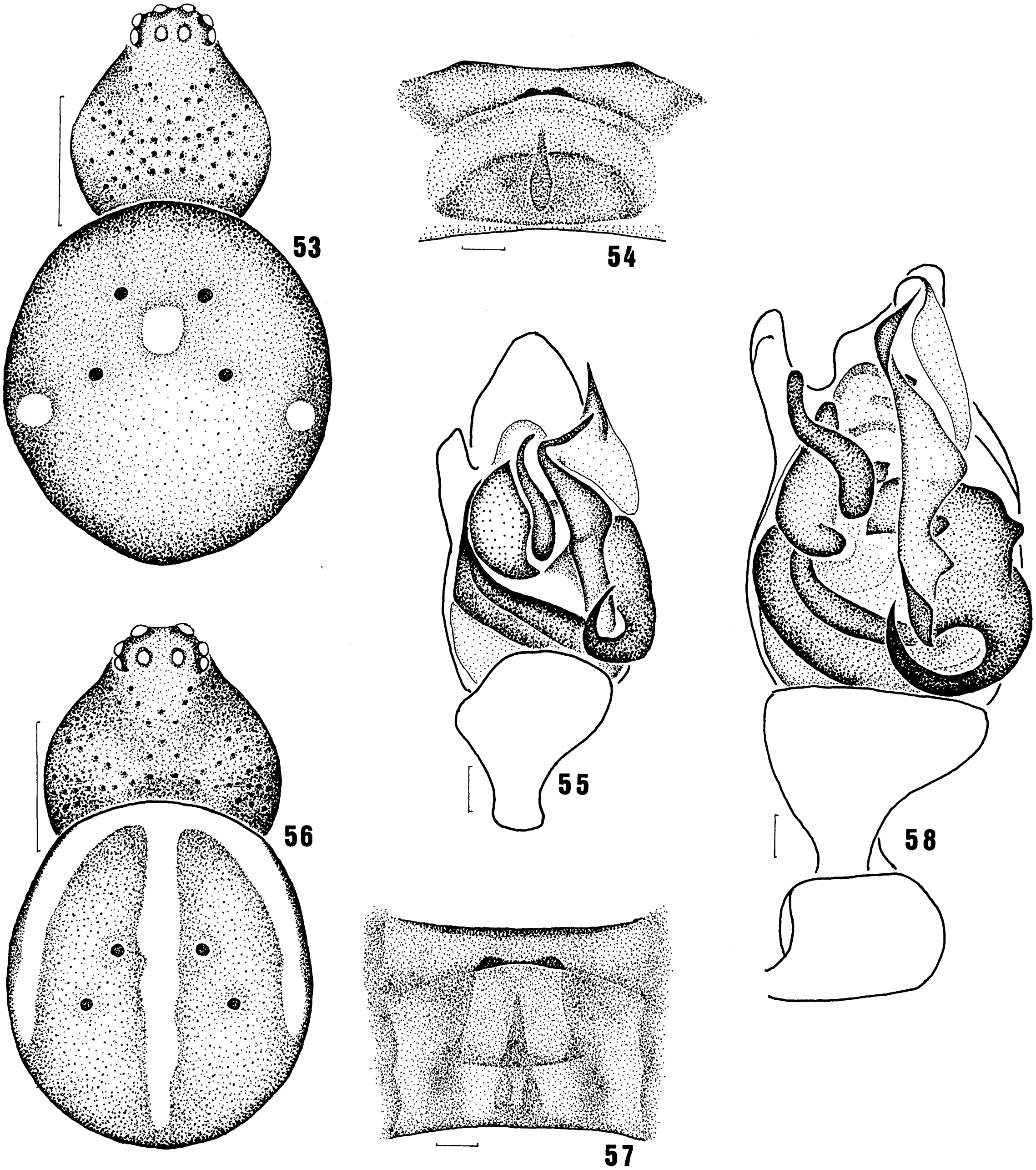
Figs. 49–52. *Steatoda erigoniformis* (O. Pickard-Cambridge 1872), ♀♂ from Iriomote Is., Okinawa Pref.—49, female abdomen, dorsal view; 50, epigynum, ventral view; 51, female internal genitalia, dorsal view; 52, male left palpus, ventral view. Scales: 0.5 mm (49) and 0.1 mm (50–52).

with sclerotized ring around pedicel in both sexes. Stridulating organ present in male, indistinct in female. Colulus large. Brownish coloration.

Epigynum with a raised transverse bridge. Palpal cymbium with a distero-prolateral projection; paracymbial hook inside of cymbium. Embolus complicated, with a large basal hook; median apophysis and tegular apophysis present.

This genus is separated with *Robertus, Enoplognatha* and *Steatoda* by having tubercles on carapace and distal process of palpal cymbium.

Type species: *Theridion guttatum* Wider 1834.



Figs. 53–58. *Crustulina guttata* (Wider 1834), ♀♂ from Toyota-shi, Aichi Pref. (53–55), and *C. sticta* (O. Pickard-Cambridge 1861), ♀♂ from Uguisuzawa-cho, Miyagi Pref. (56–58)—53, 56, female carapace and abdomen, dorsal view; 54, 57, epigynum, ventral view; 55, 58, male left palpus, ventral view. Scales: 0.5mm (53, 56) and 0.1 mm (54–55, 57–58).

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Key to the Japanese Species of *Crustulina*

1. Abdomen blackish brown with paired lateral and a median white flecks (Fig. 53)·························· ································*C. guttata* (Wider 1834)
— Abdomen purplish brown with anterior transverse and median longitudinal lines (Fig. 56)··············· ···············*C. sticta* (O. Pickard-Cambridge 1861)

Crustulina guttata (Wider 1834)
(Figs. 53–55)

Crustulina guttata: Levi 1957b, p. 369; Roberts 1985, p. 178, text-fig. 79a, pl. 108; Yaginuma 1986, p. 48, text-fig. 26–2; Chikuni 1989, p. 31, fig. 11; Zhu 1998, p. 322, fig. 216.

Note. Body length 1.5 to 2.0 mm in both sexes. Body heavily sclerotized. Carapace oval with eye region elevating in female, projecting in male; clypeus projecting. Male femora with many ventral small projections bearing with hairs. Stridulating organ present in male, indistinct in female; carapace with posterior ring-like ridge in male; abdomen with an anterior sclerotized ring in both sexes. Abdomen blackish brown with two pairs of lateral, an anterior and a median white pigments as shown in Fig. 53. Genital organs as shown in Figs. 54–55: Epigynum with an anterior transverse bridge and a posterior projection; palpal embolus thin, long and complicated; conductor pointed.

Distribution. Japan: Honshu. Europe and China.

Specimens examined. AICHI: 1♀1♂, Mt. Rokusho, Sakagami-cho, Toyota-shi, 13-IX-1987, K. Ogata leg. NARA: 1♀, Otaki, Kawakami-mura, 13-V-1979, H. Yoshida leg. OSAKA: 1♀1♀juv.1♂1♂juv., Hiraoka Park 200 m alt, Mt. Ikoma, Higashi-Osaka-shi, 8-IV-1969, Y. Nishikawa leg. (OMNH).

Crustulina sticta (O. Pickard-Cambridge 1861)
(Figs. 56–58)

Crustulina sticta: Levi 1957b, p. 370, figs. 1–3, 7; Ohno & Yaginuma 1967, p. 36, fig. 2; Roberts 1985, p. 178, text-fig. 79b, pl. 109; Yaginuma 1986, p. 47, pl. 11, fig. 4, text-fig. 26–1; Chikuni 1989, p. 31, fig. 10; Zhu 1998, p. 320, fig. 215.

Note. Body length 2.3 to 2.7 mm in female, 1.9 to 2.5 mm in male. Body heavily sclerotized. Male femora with many ventral small projections bearing with hairs. Abdomen purplish brown with a white line around anterior margin and a longitudinal median white line as shown in Fig. 56. Genital organs as shown in Figs. 57–58: Palpal embolus rather thick with a large basal hook; conductor concave.

This species was first reported in Japan by Ohno & Yaginuma (1967) from Awashima Island, Niigata Prefecture, and was also a first record of the genus *Crustulina*. Specimens examined in this paper were already used by Ohno & Yaginuma (1967) and Chikuni (1989).

Distribution. Japan: Honshu (Miyagi and Niigata Prefectures). Europe, China and North America.

Specimens examined. MIYAGI: 1♀2♂, Hosokura, Uguisuzawa-cho, 10-VI-1972, Y. Chikuni leg. (CYC). NIIGATA: 1♂, Awa-shima Is., 17-VII-1963, M. Ohno leg. (OMNH).

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Acta Arachnologica Vol. 50, No. 1 掲載論文の和文要旨

トリノフンダマシはガを誘引しない（pp. 1–4）

宮下　直[1]，坂巻祥孝[2]，新海　明[3]（[1]〒113–8656 文京区弥生 1–1–1　東京大学大学院農学生命科学研究科；[2]〒890–0065 鹿児島市郡元 1–21–24　鹿児島大学農学部；[3]〒192–0352 八王子市大塚 274–29–603）

トリノフンダマシ類は，おもにガを捕食することが知られている．これらのクモがナゲナワグモのように特定の雄のガを誘引しているかを確かめるため，クモに捕獲されたガと飛翔中のガを採集し種組成と性比を調べた．餌となったガはさまざまな種の雌雄から構成されており，性比は 0.77 で雌に偏っていた．また，餌となったガと飛翔中のガの性比に違いはみられなかった．したがって，トリノフンダマシ類は特定の雄のガを誘引していないと考えられる．

タニマノドヨウグモの放置網における円網を張るクモ 2 種の盗み寄生的行動（pp. 5–11）

吉田　真（〒525–8577 滋賀県草津市野路東 1–1–1　立命館大学理工学部生物工学科 ）

タニマノドヨウグモの放置網における円網を張るクモの盗み寄生的行動を調査するため寄主の網にかかる昆虫の数を調べた．アシナガグモ（体長 3–9 mm）とタニマノドヨウグモの幼体（1–1.5 mm）が早朝に寄主が不在の網に侵入した．侵入者の盗みによって放置網上の昆虫の数は午前中に急速に減少した．侵入者の個体数は徐々に増加し，午後にはそれらのほとんどは放置網の中に小さい網を構築した．大型の侵入者は小型の侵入者を追い出し，より多くの昆虫を獲得した．寄主による防衛がないので，放置網における餌盗みは餌獲得には効果的な戦略かもしれない．

南西諸島産コガネヒメグモ属およびツリガネヒメグモ属（クモ目：ヒメグモ科）の 2 新種（pp. 13–16）

吉田　哉（〒990–2484 山形市篭田 2 丁目 7 番 16 号）

南西諸島産のヒメグモ科の 2 新種を，*Chrysso sasakii* オキナワホシミドリヒメグモ（新称，沖縄島，屋久島産）および *Achaearanea projectivulva* トガリヒメグモ（新称，沖縄島産）の名前で記載した．

韓国より得られた *Dyobelba* 属の 1 新種（ダニ亜綱：ササラダニ目：ジュズダニ科）（pp. 17–22）

バヤルトグトホ　バダムドルジ[1]，崔　星植[2]，青木淳一[3]（[1]モンゴル国立大学生物学部動物学研究室；[2]圓光大学校農科大学；[3]神奈川県立生命の星・地球博物館）

韓国より得られた *Dyobelba* 属の 1 新種を記載した．*Dyobelba paucituberculata* sp. nov. は，次の点によって同属の他種から区別される：前体部背面隆起（prodorsal enantiophyses）*B*，*D*，腹面内隆起（epimeral and dorsosejugal enantiophyses）*E2*，*V*，および脇突起（discidium）を完全に欠くこと，基節板毛の数本（第 *1*－第 *3* 列 *D*，および *4b*）の基部に微小突起を持つこと，第 IV 脚転節に 2 本の毛を持つこと．*Dyobelba* 属の識別点およびこれまでに知られている本属の分布について記述した．

台湾初記録のカワリアシダカグモ属（新称），コアシダカグモ属，ミナミアシダカグモ属および 4新種の記載（クモ綱：クモ目）（pp. 23–31）

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台湾からアシダカグモ科の 4新種を以下のように命名して記載した：*Pseudopoda serrata*, *Pseudopoda recta*, *Sinopoda exspectata*, *Olios scalptor*. これら 3 属とも台湾から初記録となる．またアシダカグモ *Heteropoda venatoria* (Linné 1767) の 1 採集記録も報告した．

日本産のモリヒメグモ属，ハガタグモ属，カガリグモ属およびオオノヒメグモ属（クモ目：ヒメグモ科）（pp. 33–51）

吉田　哉（〒990–2484 山形市篭田 2 丁目 7 番 16 号）

日本産のヒメグモ科モリヒメグモ属，ハガタグモ属，カガリグモ属およびオオノヒメグモ属に検討を加え，これら 4 属に含まれる 17 種に検索表および簡単な記載を与えた．北海道大雪山高山雪田群落で採集されたモリヒメグモ属の 1 新種 *Robertus yasudai* new species（ヤスダモリヒメグモ，新称）を記載し，中国産の *Enoplognatha lordosa* Zhu & Song 1992（コガタコノハグモ，新称）を日本から新たに記録した．*Enoplognatha abrupta*（Karsch 1879）new combination（カレハヒメ

グモ，カガリグモ改称）および *Clubiona parvula*（S. Saito 1933）new combination（ヌカアブラフクログモ，改称）は *Steatoda* から新たに転属した．日本産の3種 *Enoplognatha japonica* Bösenberg & Strand 1906 ヤマトコノハグモ，*E. dorsinotata* Bösenberg & Strand 1906 セマダラコノハグモおよび *Steatoda albimaculosa*（S. Saito 1934）ブチモチイグモをヨーロッパから北アメリカまで広く分布する *E. tecta*（Keyserling 1884）(和名にはヤマトコノハグモを当てる）の，また日本産の *E. transversifoveata*（Bösenberg & Strand 1906）と中国産の *E. hangzhouensis* Zhu 1998 を *E. abrupta*（Karsch 1879）カレハヒメグモの，さらに中国産の *E. submargarita* Yaginuma & Zhu 1992 を日本で記載された *E. margarita* Yaginuma 1964 シロタマヒメグモの新参異名とした．2つの種名 *S. japonica*（Dönitz & Strand 1906)オスナキグモおよび *S. minus*（Dönitz & Strand 1906）コヌサグモを *nomina dubia* 疑問名とし，本論では扱っていない．なお，*Steatoda* 属の和名カガリグモ属はそのまま使用する．

日本及び台湾産のウエムラグモ科及びネコグモ科のクモ7種（pp. 53–65）

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日本及び台湾産の標本に基づいて，ウエムラグモ科の5種及びネコグモ科の2種を報告した．ウラシマグモ属の1新種を *Phrurolithus vulpes* コガネウラシマグモ（新称）と命名して記載し，*Phrurolithus sinicus* Zhu & Mei 1982 コツブウラシマグモ（新称），*P. taiwanicus* Hayashi & Yoshida 1993 タイワンウラシマグモ（新称），*P. labialis* Paik 1991 ウスイロウラシマグモ（新称）及び *Corinna gulosa*（Thorell 1878）ハマカゼハチグモ（新称）の4種を日本新記録種として報告した．*Corinna* ハチグモ属（新称）のクモが日本から記録されたのは初めてである．また，*Phrurolithus lynx* Kamura 1994 ヤマネコウラシマグモの台湾における分布を明らかにした．さらに，*Phrurolithus taiwanicus* の雄とジガバチグモ属の *Castianeira shaxianensis* Gong 1983 オビジガバチグモの雄を初めて記載した．

日本産オニグモ属の12新種および1新記録種（pp. 67–90）

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日本各地から採集された標本にもとづき，次の12新種および1新記録種を記載した．*Araneus nojimai* マメオニグモ，*A. tsurusakii* カラオニグモ，*A. ryukyuanus* リュウキュウオニグモ（新称），*A. borealis* キタマメオニグモ（新称），*A. iriomotensis* イリオモテオニグモ（新称），*A. yasudai* ヤスダヒメオニグモ（新称），*A. hoshi* ホシマメオニグモ（新称），*A. komi* コミオニグモ（新称），*A. ogatai* オガタオニグモ（新称），*A. miyashitai* コケオニグモ，*A. mayumiae* マユミオニグモ（新称），*A. amabilis* チュラオニグモ（新称），*A. acusisetus* Zhu & Song 1994 オオクマヤミイロオニグモ（新称）．

トリノフンダマシ属の2新シノニム（pp. 91–93）

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ソメワケトリノフンダマシ *Cyrtarachne induta* Yaginuma 1960 をアカイロトリノフンダマシ *C. yunoharuensis* Strand, 1918 の，クロトリノフンダマシ *C. nigra* Yaginuma 1960 をシロオビトリノフンダマシ *C. nagasakiensis* Strand 1918 のそれぞれ新参シノニムとした．